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09/839,163	04/23/2001	Yoshio Oowaki	HITA.0050	4876

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EXAMINER

SHAPIRO, LEONID

ART UNIT

PAPER NUMBER

2673

DATE MAILED: 07/22/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,163

Applicant(s)

OOWAKI ET AL.

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 11 June 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Drawings

1. The corrected Fig. 4 received on 06-11-03 and approved.

Requirement for information

2. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application. Applicant cited Admitted Prior on page 3, Lines 10-18.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation of the independent claims 1-4, 7 and 10 “thereby instead of ineffective display datum during period when ineffective display datum should be transmitted thereby” is not clear. How does instead of ineffective display datum ... ineffective display datum should be transmitted thereby?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (APR) in view of Takahara et al. (JP No. 04-168417).

As to claim 1, as best understood by examiner, APA teaches a liquid crystal display device with : a liquid crystal display element; a plurality of driving circuits (See in Specification Page 1, Lines 9-12); a display control device transmitting display data including an ineffective datum to the plurality of driving circuits (See in Specification Page 3, Lines 4-18); an effective display datum being transmitted prior to the ineffective display datum (See in Specification Page 3, Lines 4-18).

APA does not show the display control device transmits a datum having the same level as that of an effective display datum being transmitted prior to the ineffective display datum.

Since Takahara et al. teaches to skip unused pins (See Fig. 2, items 2, 21, in Detailed explanation of the invention Page 9, Lines 2-13), it would have been obvious to one of ordinary skill in the art at the time of invention that ineffective datum will have the same level between and of one ST pulse and start of the another as that of an effective display datum being transmitted prior as shown by Takahara et al. in APA apparatus even when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups. (See in Takahara et al. reference Detailed explanation of the invention Page 2, Lines 2-3).

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As to claim 2, as best understood by examiner, APA teaches a liquid crystal display device with: a liquid crystal display element; a plurality of driving circuits (See in Specification Page 1, Lines 9-12); a display control device transmitting display data including an ineffective datum to the plurality of driving circuits (See in Specification Page 3, Lines 4-18); an effective display datum (to connected terminals) being transmitted subsequently to the ineffective display datum (See in Specification Page 3, Lines 4-18).

APA does not show the display control device transmits a datum having the same level as that of an effective display datum being transmitted subsequently to the ineffective display datum.

Since Takahara et al. teaches to skip unused pins (See Fig. 2, items 2, 21, in Detailed explanation of the invention Page 9, Lines 2-13), it would have been obvious to one of ordinary skill in the art at the time of invention that ineffective datum will have the same level between end of the one ST pulse and start of the another as that of an effective display datum being transmitted subsequently as shown by Takahara et al. in APA apparatus even when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups. (See in Takahura et al. reference Detailed explanation of the invention Page 2, Lines 2-3).

As to claims 3-4, as best understood by examiner, APA teaches a liquid crystal display device with: a liquid crystal display element: a plurality of driving circuits (See in Specification Page 1, Lines 9-12).

APA does not show a display control device transmitting display data for odd (even) numbered ones of the plurality of driving circuits and display data for even (odd) numbered ones alternately; wherein the display control device transmits a datum having the same level as that

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of effective display datum for the odd (even) numbered one of the plurality of driving circuits being transmitted prior (subsequently) to the ineffective display datum to be inputted to an at least one of the even (odd) numbered ones..

Takahara et al. teaches a display control device transmitting display data for odd (even) numbered ones of the plurality of driving circuits and display data for even (odd) numbered ones alternately (See Fig. 4,7, items 21, ST1-ST12, 92, in Operation See Page 10, Lines 4-25); wherein the display control device transmits a datum having the same level as that of effective display datum for the odd (even) numbered one of the plurality of driving circuits being transmitted prior to the ineffective display datum (auxiliary terminals, in which other ends are opened) (See Fig. 4-5,7, items 21, ST1-ST12, 92, in Operation See Page 11, Lines 1-25)

Since Takahara et al. teaches to skip unused pins (See Fig. 2, items 2, 21, in Detailed explanation of the invention Page 9, Lines 2-13), it would have been obvious to one of ordinary skill in the art at the time of invention that ineffective datum will have the same level between end of the one ST pulse and start of the another as that of an effective display datum being transmitted prior or subsequently for even (odd) numbered as shown by Takahara et al. in APA apparatus even when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups. (See in Takahara et al. reference Detailed explanation of the invention Page 2, Lines 2-3).

As to claims 5-6, Takahara et al. teaches the at least one of odd (even) numbered ones of the plurality of driving circuits has an output terminal being not connected to any signal lines of the liquid crystal display element (See Fig. 4, item 21, pins 161-162, in Operation See Page 10, Lines 4-25).

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Takahara et al does not show and ineffective display datum is a display datum for an internal circuit being connected to the output terminal.

However, since Takahara et al. teaches to skip unused pins (See Fig. 2, items 2, 21, in Detailed explanation of the invention Page 9, Lines 2-13), it would have been obvious to one of ordinary skill in the art at the time of invention that ineffective datum will have the same level between end of the one ST pulse and start of the another as that of an effective display datum being transmitted prior in Takahara et al. apparatus even when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups. (See in Detailed explanation of the invention Page 2, Lines 2-3).

3. Claims 7-14 rejected under 35 U.S.C. 103(a) as being unpatentable over APA and Takahara et al. in view of Ino et al. (US Patent No. 6,424,328 B1).

As to claims 7, 10, as best understood by examiner, APA teaches a liquid crystal display device with: a liquid crystal display element; a plurality of driving circuits (See in Specification Page 1, Lines 9-12).

APA does not show a display control device transmitting display data for odd (even) numbered ones of the plurality of driving circuits and display data for even (odd) numbered ones alternately; wherein the display control device transmits a datum having the same level as that of effective display datum for the odd (even) numbered one of the plurality of driving circuits being transmitted prior to the ineffective display datum.

Takahara et al. teaches a display control device transmitting display data for odd (even) numbered ones of the plurality of driving circuits and display data for even (odd) numbered ones

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alternately (See Fig. 4,7, items 21, ST1-ST12, 92, in Operation See Page 10, Lines 4-25); wherein the display control device transmits a datum having the same level as that of effective display datum for the odd (even) numbered one of the plurality of driving circuits being transmitted prior to the ineffective display datum (auxiliary terminals, in which other ends are opened) (See Fig. 4-5,7, items 21, ST1-ST12, 92, in Operation See Page 11, Lines 1-25)

Since Takahara et al. teaches to skip unused pins (See Fig. 2, items 2, 21, in Detailed explanation of the invention Page 9, Lines 2-13), it would have been obvious to one of ordinary skill in the art at the time of invention that ineffective datum will have the same level between end of the one ST pulse and start of the another as that of an effective display datum being transmitted prior as shown by Takahara et al. in APA apparatus even when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups. (See in Detailed explanation of the invention Page 2, Lines 2-3).

APA and Takahura et al. do not show the display control device has a first storing means for storing display data for the odd numbered ones of the plurality of driving circuits which are inputted from an outside of the liquid crystal display device and second storing means for storing display data for the even numbered ones of the plurality of driving circuits which are inputted from an outside of the liquid crystal display device, reads out the display data from the first and second storing means alternately, and transmits them to plurality of driving circuits.

Ino et al. teaches memories for even and odd drivers (See Fig. 15, items 672n and 672n+1, in description See Col. 10, lines 29-430. It would have been obvious to one of ordinary skill in the art at the time of invention to use memories of Ino et al. in APA and Takahara et al.

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apparatus in order to achieve dot inversion driving in the entire pixel area (See Col. 3, lines 39-40 in Ino et al. reference).

As to claims 8-9, 11-12, APA, Takahara et al. and Ino et al. do not show detection of timing for transmitting the ineffective display datum and transmit the effective display datum being read out from the first storing means as ineffective display datum, wherein the display control device stores the effective display datum for the odd (even) numbered driving circuit being situated before the ineffective datum in the second (first) storing means, when a display datum to be stored in the second storing means is ineffective. Since Takahara et al. teaches to ignore the datum level for open pins read out from the first or second storing means (skip pins 161-162 by using ST1-ST12 start pulses). It would have been obvious to one of ordinary skill in the art at the time of invention to use any (including the same) level for transmitting ineffective datum in Takahara et al. apparatus even when the output bit number of a driver IC is larger than the circuit number.

As to claim 13, Takahara et al. teaches display control device detects timing of the ineffective datum by counting clock signals being transmitted to plurality of the driving circuits (See Fig. 2, items 21, 26, ST3, ST4, in Means for solving the problem See Page 9, Lines 2-16).

As to claim 14, Takahara et al. teaches the at least one of the plurality of driving circuits has an output terminal being not connected to any signal lines of the liquid crystal display element (See Fig. 4, item 21, pins 161-162, in Operation See Page 10, Lines 4-25).

APA and Takahara et al. does not show and ineffective display datum is a display datum for an internal circuit being connected to the output terminal.

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However, Takahara et al. teaches to ignore the datum level for open pins (skip pins 161-162 by using ST1-ST12 start pulses). It would have been obvious to one of ordinary skill in the art at the time of invention to use any (including the same) level for transmitting ineffective datum in APA and Takahara et al. apparatus even when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups. (See in Detailed explanation of the invention Page 2, Lines 2-3).

Response to Arguments

4. Applicant's arguments filed on 06-11-03 with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.


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July 18, 2003



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